



CASUISTRY

Delayed bleeding after partial nephrectomy. Management with selective embolization[☆]

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KEYWORDS

Partial nephrectomy;
Pseudoaneurysm;
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Selective vascular
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Abstract

Introduction: Bleeding after partial nephrectomy can be immediate or delayed and may have severe consequences. The incidence of this complication is low. The most frequent cause of delayed bleeding is arterial pseudoaneurysm. Superselective embolization is a feasible therapeutic option that has shown good results.

Objective: To evaluate treatment and outcomes of delayed bleeding in our series of patients with partial nephrectomy.

Material and methods: We performed a retrospective study of our database of partial nephrectomies. Patients who developed delayed bleeding (after discharge) were identified. Clinical histories were reviewed and data on presentation, diagnosis, treatment and outcomes were analyzed.

Results: Among our series of patients undergoing partial nephrectomy, three developed delayed bleeding (1.3%). Symptom onset occurred 17–25 days after surgery and consisted of hematuria or lumbar pain. Diagnosis was provided through ultrasound, abdominal computed tomography and renal angiography. In all three patients, a complicated pseudoaneurysm was diagnosed and all patients underwent renal artery catheterization with selective renal artery embolization. In all patients, immediate control of bleeding was achieved. Outcome after a follow-up of 61–92 months was favorable.

Conclusions: Selective vascular embolization is the treatment of choice of renal pseudoaneurysm after partial nephrectomy in hemodynamically stable patients.

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PALABRAS CLAVE

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Sangrado diferido después de nefrectomía parcial. Manejo mediante embolización selectiva

Resumen

Introducción: El sangrado después de una nefrectomía parcial es una complicación con posibles consecuencias graves. Puede ser inmediato o diferido y su incidencia es baja. La causa más frecuente del sangrado diferido es el pseudoaneurisma arterial. La embolización supraseductiva vascular es una opción terapéutica posible que ha demostrado buenos resultados.

Objetivo: Evaluar la evolución y el tratamiento del sangrado diferido en nuestra serie de pacientes con nefrectomías parciales.

Material y métodos: Realizamos un estudio retrospectivo de nuestra base de datos de nefrectomías parciales. Identificamos los pacientes que presentaron sangrado diferido (después del alta). Se revisó la historia clínica, analizando datos sobre la presentación, el diagnóstico, el tratamiento y la evolución de los pacientes.

Resultados: De nuestra serie de nefrectomías parciales tres pacientes presentaron sangrado diferido (1,3%). La clínica se inició después de 17 a 25 días de la cirugía por la aparición de hematuria o dolor lumbar. El diagnóstico se realizó mediante ecografía, TAC abdominal y angiografía renal. En todos los pacientes se diagnosticó un pseudoaneurisma arterial complicado, siendo sometidos a cateterismo arterial renal con embolización selectiva del mismo. La evolución fue correcta en todos los pacientes con control inmediato del sangrado. Documentamos un seguimiento posterior favorable de 61 a 92 meses.

Conclusiones: La embolización selectiva vascular es el tratamiento de elección del pseudoaneurisma renal sintomático después de nefrectomía parcial en el paciente hemodinámicamente estable.

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Introduction

Partial nephrectomy (PN) is the technique of choice in the treatment of renal tumors in clinical stage T1a (≤ 4 cm), and also in selected cases in stage T1b.^{1,2} Currently, laparoscopic PN is considered a good alternative to open surgery, showing the same oncological results in some long series, reducing the morbidity and complications of the surgical wound.³

The complications of PN have been extensively described in the literature. Postoperative hemorrhage is a complication with potentially serious consequences. It is estimated that, including immediate and delayed bleeding, its incidence is between 4 and 6% after laparoscopic PN, and about 1.6% after open PN.^{3,4} There are few studies focusing on the diagnosis and performance for delayed bleeding, the one that occurs after the patient's discharge. In this work, we analyze the patients in our PN series who had delayed bleeding.

Material and methods

We performed the retrospective study of the clinical histories of the patients in our PN database who had a delayed bleeding as a postoperative complication. We defined delayed bleeding as the one occurred after discharge. We analyzed its presentation, diagnosis, treatment, and evolution.

Results

Between 1992 and December 2009, 230 PN were performed at our center. In 136 cases (59.1%), we used the open

approach, and in 94 (40.8%), the laparoscopic one. We identified three patients (1.3%), all male, who had a delayed bleeding after PN. All had undergone, without incidents, a PN for tumors between 2 and 3.5 cm (Table 1).

They came to casualty with hematuria or lumbar pain between 17 and 25 days after surgery, all requiring blood transfusion (Table 2). The diagnosis was made by abdominal ultrasound and/or computed tomography (CT). Given the clinical and radiological suspicion of the existence of active bleeding, a selective arteriography was performed on the three patients. In all of them, the bleeding was attributed to the presence of an aneurysmal dilation at the level of an arterial branch (Figs. 1 and 2). Superselective embolization of the arterial branch got the immediate control of the bleeding in all the patients.

Discussion

Delayed bleeding after PN is rare, and it is usually attributed to the presence of artery pseudoaneurysms (AP).⁵ The incidence of symptomatic AP is over 0.43% after open PN,⁶ and 1.7–7.5% after laparoscopic PN.^{7,8} However, we consider that most of the AP do not get to produce clinical manifestations, so it is estimated that their real incidence is much higher.⁹ AP related to closed or penetrating renal trauma, extracorporeal lithotripsy, after placement of nephrostomy, and percutaneous nephrolithotomy^{10–15} have been reported. In the international literature so far, less than 30 AP have been reported.¹⁶

The appearance of AP after PN is attributed to the persistence in the surgical site of arterial vessels, partially or completely open not fully sutured during the intervention.^{9,17,18} This would create an intraparenchymal

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